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| 10/763,045      | 01/21/2004  | Heinrich Schenk      | 1890-0045           | 3788             |

7590 06/07/2007  
Maginot, Moore & Beck LLP  
Chase Tower  
Suite 3250  
111 Monument Circle  
Indianapolis, IN 46204-5109

EXAMINER

DO, CHAT C

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| ART UNIT | PAPER NUMBER |
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2193

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06/07/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/763,045

Applicant(s)

SCHENK, HEINRICH

Examiner

Chat C. Do

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01/21/04; 05/26/04; 09/13/04; 01/26/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 26-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 26-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>09/13/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitations cited in claim 26 and 45 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. Figures 1 and 10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated in which Figure 1 is seen or disclosed in prior art DE 19850642 and

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Figure 10 is disclosed in the background of invention. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because the abstract is written more than 150 words in length and must be written on a separate sheet. Correction is required. See MPEP § 608.01(b).

### *Claim Objections*

5. Claim 30 is objected to because of the following informalities:

Claim 30 is currently depending on itself. For examination purposes, the examiner considers the claim 30 is depending on claim 29 since claim 30 mentions about the window function which previously disclosed in claim 29.

Appropriate correction is required.

***Claim Rejections - 35 USC § 101***

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 26-50 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 26-50 cite a method and arrangement for processing a signal in accordance with a predetermined mathematical algorithm. In order for claims to be statutory, claims must either include a practical/physical application or a concrete, useful, and tangible result. However, claims 26-50 merely disclose steps/components for method and arrangement for processing a signal without further disclosing a practical/physical application or a useful and tangible result. Claims 26-50 are pre-emptive in every world applications in processing signal by a predetermined mathematical algorithm. Therefore, claims 26-50 are directed to non-statutory subject matter.

*Claim Rejections - 35 USC § 102*

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 26-39 and 41-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Schenk (D.E. 19850642).

Re claim 26, Schenk discloses in Figures 1-3 a method for processing a discrete-time signal formed by temporally consecutive signal values of a signal vector (e.g. abstract in page 13 and summary of invention line 61 col. 1 to line 15 col. 2), providing a signal vector (e.g. as signal  $Y_x$  input into Crest-Factor Reduction 20 in Figure 3); determining at least one correction vector as a function of the signal vector (e.g. col. 2 lines 25-45 wherein  $\delta y_{1k}$  and  $y_{2k}$  are the correction vectors), the at least correction vector defining a signal having an envelope curve (e.g. as outer signal cover of the correction vector), the envelope curve having at least one local extreme value (e.g. Figure 3 as inherently exist to stabilize the system), adding the at least one correction vector to the signal vector (e.g. abstract page 13 and lines 1-20 col. 2).

Re claim 27, Schenk further discloses in Figures 1-3 the envelope curve has at least one local maximum (e.g. inherently exist to stabilize the system).

Re claim 28 Schenk further discloses in Figures 1-3 the envelope curve has at least one local minimum (e.g. inherently exist to stabilize the system).

Re claim 29, Schenk further discloses in Figures 1-3 determining the at least one correction vector further comprises multiplying a base correction vector by a window function (e.g. col. 2 lines 25-42 and example in cols. 5-7 wherein the base correction vector is seen in col. 6 lines 45-57).

Re claim 30, Schenk further discloses in Figures 1-3 the window function has at least one window area of consecutive elements (e.g. col. 5 lines 10-25) in which the values of the window function differ from zero (e.g. cols. 5-6 with values of  $\delta y_{1k}$  and  $\delta y_{2k}$ ), and wherein the values of the window function outside the at least one window area are zero (e.g. non affected window and Figure 2).

Re claim 31, Schenk further discloses in Figures 1-3 a window area interrupted by a first end of the correction vector is continued at the other second end of the correction vector (e.g. col. 2 lines 42-65 and col. 4 lines 1-6).

Re claim 32, Schenk further discloses in Figures 1-3 the window function comprises one of a group consisting of a rectangular window (e.g. col. 5 lines 10-25 as rectangular window with single column matrix of element), a triangular window, a Von-Hann window, a Gauss window, a Hamming window or a Blackman window.

Re claim 33, Schenk further discloses in Figures 1-3 at least one window area of the window function is arranged with respect to the temporal sequence of elements of the correction vector (e.g. col. 5 lines 10-25 with consecutive sequence elements  $y_1$ - $y_8$ ) such that a maximum value of the signal vector lies within the window area (e.g. max value is  $y_6 = 12$  as seen in col. 5 lines 10-45).

Re claim 34, Schenk further discloses in Figures 1-3 the base correction vector only contains frequency components which lie in the frequency band from zero to half the sampling frequency of the signal vector (e.g. col. 5 lines 1-10).

Re claim 35, Schenk further discloses in Figures 1-3 the elements of the base correction vector alternatively adopt one of two values (e.g. either 1 or -1 as seen in cols. 5-6).

Re claim 36, Schenk further discloses in Figures 1-3 determining the at least one correction vector and adding the at least one correction vector further comprises determining a plurality of correction vectors such that the envelope curves of signals described by the correction vectors have different local extreme values (e.g. col. 5 lines 10 at different band/spectrum frequency).

Re claim 37, Schenk further discloses in Figures 1-3 after a first addition of a first correction vector to the signal vector (e.g. as  $\Delta y_{1k}$  as seen in col. 5), a subsequent correction vector is determined as a function of a total vector produced by the first addition (e.g. as  $\Delta y_{2k}$  as seen in col. 6).

Re claim 38, Schenk further discloses in Figures 1-3 steps of determining and adding the at least one correction vector further comprise: dividing the signal vector into at least two part signal vectors in a cyclically alternating manner (e.g. as input into component for reduction 20 in Figure 3); calculating at least one correction vector for each part signal vector (e.g. computing each  $\Delta$  for each input signal); adding the at least one correction vector for each part signal vector to the respective part signal vector



(e.g. abstract page 13 and lines 1-15 col. 2); and recombining the part signal vectors (e.g. Figure 3 with component 5).

Re claim 39, Schenk further discloses in Figures 1-3 the base correction vector includes a plurality of elements, each element being determined using the largest element and the smallest element of the elements of the signal vector (e.g. cols. 5-6).

Re claim 41, Schenk further discloses in Figures 1-3 lengthening the signal vector at a first end by adding at least one element of the signal vector from a opposing second end of the signal vector (e.g. Figure 3).

Re claim 42, Schenk further discloses in Figures 1-3 the at least one correction vector is lengthened at a first end of the correction vector by adding at least one consecutive element of the correction vector starting at an opposing second end of the correction vector, such that the correction vector and the signal vector are lengthened by the same number of elements (e.g. Figure 3 wherein  $M=N$ ).

Re claim 43, Schenk further discloses in Figures 1-3 providing the signal vector by performing an inverse Fourier transformation on an input signal (e.g. by component IFFT 4 in Figure 3).

Re claim 44, Schenk further discloses in Figures 1-3 the input signal comprises a discrete multitone modulated frequency domain signal (e.g. line 60 col. 2 to line 5 col. 3).

Re claim 45, it has similar limitations cited in claim 43. Thus, claim 45 is also rejected under the same rationale as cited in the rejection of rejected claim 43.

Re claim 46, it has similar limitations cited in claim 29. Thus, claim 46 is also rejected under the same rationale as cited in the rejection of rejected claim 29.

Re claim 47, it has similar limitations cited in claim 30. Thus, claim 47 is also rejected under the same rationale as cited in the rejection of rejected claim 30.

Re claim 48, it has similar limitations cited in claim 33. Thus, claim 48 is also rejected under the same rationale as cited in the rejection of rejected claim 33.

Re claim 49, it has similar limitations cited in claim 34. Thus, claim 49 is also rejected under the same rationale as cited in the rejection of rejected claim 34.

Re claim 50, it is a signal processor of claim 45. Thus, claim 50 is also rejected under the same rationale as cited in the rejection of rejected claim 45.

### ***Double Patenting***

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 26-28, 44-45, and 50 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 6 of U.S. Patent No. 6,529,925.

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Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Claims 1 and 6 of Patent No. 6,529,925 contain every element of claims 26-28, 44-45, and 50 of the instant application and thus anticipated the claims of the instant application. Claims of the instant application therefore are not patently distinct from the earlier patent claims and as such are unpatentable over obvious-type double patenting. A later patent/application claim is not patentably distinct from an earlier claim if the later claim is anticipated by the earlier claim.

12. Claims 26, 38, 41, 43-45, and 50 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 19, 22-23, 29, 31, 33, and 36 of copending Application No. 10/763,046. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Claims 19, 22-23, 29, 31, 33, and 36 of Application No. 10/763,046 contain every element of claims 19, 22-23, 29, 31, 33, and 36 of the instant application and thus anticipated the claims of the instant application. Claims of the instant application therefore are not patently distinct from the earlier patent claims and as such are unpatentable over obvious-type double patenting. A later patent/application claim is not patentably distinct from an earlier claim if the later claim is anticipated by the earlier claim.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

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"A later patent claim is not patentably distinct from an earlier patent claim if the later claim is obvious over, or **anticipated by**, the earlier claim. In re Longi, 759 F.2d at 896, 225 USPQ at 651 (affirming a holding of obviousness type double patenting because the claims at issue were obvious over claims in four prior art patents); In re Berg, 140 F.3d at 1437, 46 USPQ2d at 1233 (Fed. Cir. 1998) (affirming a holding of obviousness-type double patenting where a patent application claim to a genus is anticipated by a patent claim to a species within that genus). " ELI LILLY AND COMPANY v BARB LABORATORIES, INC., United States Court of Appeals for the Federal Circuit, ON PETITION FOR REHEARING EN BANC (DECIDED: May 30, 2001).

"Claim 12 and Claim 13 are generic to the species of invention covered by claim 3 of the patent. Thus, the generic invention is "**anticipated**" by the species of the patented invention. Cf., Titanium Metals Corp. v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (holding that an earlier species disclosure in the prior art defeats any generic claim) 4. This court's predecessor has held that, without a terminal disclaimer, the species claims preclude issuance of the generic application. In re Van Ornum, 686 F.2d 937, 944, 214 USPQ 761, 767 (CCPA 1982); Schneller, 397 F.2d at 354. Accordingly, absent a terminal disclaimer, claims 12 and 13 were properly rejected under the doctrine of obviousness type double patenting." (In re Goodman (CA FC) 29 USPQ2d 2010 (12/3/1993)).

### *Conclusion*

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
- a. U.S. Patent No. 4,701,873 to Schenk discloses a method and a circuit arrangement for DSP utilizing adaptive transversal filter techniques.
  - b. U.S. Patent No. 3,952,189 to Fabricius discloses a complex analog waveform generator.
  - c. U.S. Patent No. 6,075,816 to Werner et al. disclose windowing technique for blind equalization.
  - d. U.S. Patent Application No. 2003/0179833 to Porco et al. disclose a method and apparatus for reducing transmitter peak power requirements using dual matrices.

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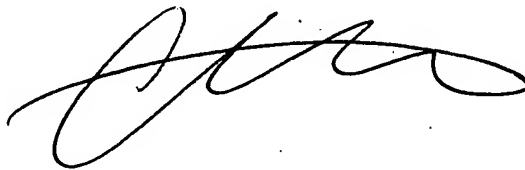
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do  
Examiner  
Art Unit 2193

June 4, 2007

A handwritten signature in black ink, appearing to be 'Chat C. Do', written in a cursive style.